

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
27 January 2005 (27.01.2005)

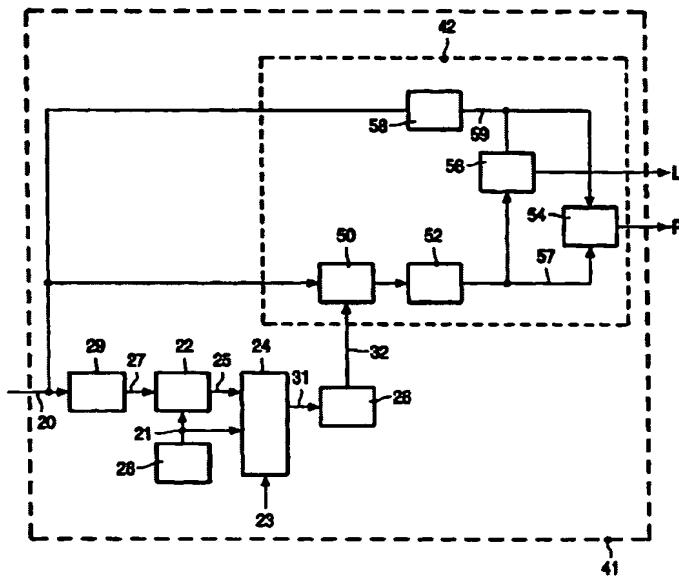
PCT

(10) International Publication Number  
**WO 2005/008929 A1**

- (51) International Patent Classification<sup>7</sup>: H04H 5/00, 1104B 1/16
- (52) International Application Number: PCT/IB2004/051240
- (22) International Filing Date: 16 July 2004 (16.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 03102241.1 21 July 2003 (21.07.2003) EP
- (71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TEN PIERICK, Hendrik [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: ELEVeld, Koop, J.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

*[Continued on next page]*

(54) Title: RECOVERING A SIGNAL WITHOUT A PHASE LOCKED LOOP



WO 2005/008929 A1

(57) Abstract: An arrangement for recovering a first digital signal (7,31) from a digital input signal (20) comprises a digital filter (29) for filtering the digital input signal (20), a digitally controlled oscillator 28 for generating a digital reference signal (21) and a digital phase detector (22) for determining a phase difference (25) between the filtered digital input signal (27) and the digital reference signal (21). The first digital signal (7, 31) can be recovered by adding the determined phase difference (25) to the phase of the digital reference signal (21).

BEST AVAILABLE COPY